State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-54-5
Relating to Exemptions under Section 27156
of the Vehicle Code

PRESTOLITE ELECTRICAL DIVISION
PRESTOLITE "BID" BREAKERLESS INDUCTIVE IGNITION SYSTEM
WARDS "BID" BREAKERLESS INDUCTIVE IGNITION SYSTEM
RITE-LINE "BID" BREAKERLESS INDUCTIVE IGNITION SYSTEM
CO-OP "BID" BREAKERLESS INDUCTIVE IGNITION SYSTEM
WELLS "BID" BREAKERLESS INDUCTIVE IGNITION SYSTEM
ECHLIN "BID" BREAKERLESS INDUCTIVE IGNITION SYSTEM
ACCEL "BID" BREAKERLESS INDUCTIVE IGNITION SYSTEM
CONOCO (DYNALIFE) "BID" BREAKERLESS INDUCTIVE IGNITION SYSTEM
=AUTOMATIC TRANSMISSION PARTS, INC.
GULF OIL (CRUISEMASTER) "BID" BREAKERLESS INDUCTIVE IGNITION SYSTEM
FORD (MOTORCRAFT) "BID" BREAKERLESS INDUCTIVE IGNITION SYSTEM
SHELL OIL (SHELL) "BID" BREAKERLESS INDUCTIVE IGNITION SYSTEM
IHC "FLEETRITE" BREAKERLESS INDUCTIVE IGNITION SYSTEM

Pursuant to the authority vested in the Air Resources Board by Section 27156 of the Vehicle Code; and

Pursuant to the authority vested in the undersigned by Section 39515 of the Health and Safety Code;

IT IS ORDERED AND RESOLVED: That the installation of the "BID" breakerless inductive ignition systems manufactured by the Prestolite Electrical Division, 511 Hamilton Street, Toledo, Ohio 43694, and marketed as indicated herein has been found not to reduce the effectiveness of required motor vehicles pollution control devices and, therefore, is exempt from the prohibitions of Section 27156 of the Vehicle Code for 1976 and older model year vehicles except as follows:

1) Those vehicles originally equipped with breakerless ignition systems or dual point ignition systems where one of the points is used to retard timing for emission control.

2) Those 1966 through 1970 vehicles equipped with "NOx retrofit devices" with a 4° retard in basic ignition timing (i.e., Carter, Echlin, STP Air Computer, AQP - Electro-NOx, and Kar Kit).

This device consists of an electronic pack, trigger wheel and pick up assembly, and wiring harness. The following is a list of each device manufactured by the Prestolite Electrical Division and marketed by brand name and part number.

Brand Name	Part Numbers
Prestolite	IDL-5001, 5010, 5011, 5012, 5013, 5014, 5015, 5017, 5018, 5019, and 5020.
Wards	15801, 15802, 15803, 15804, 15805, 15806, 15807, 15808, and 15809.
Rite-Line	RL-7020, 7021, 7022, 7023, 7024, 7025, 7026, 7031, 7032, 7033, and 7034.
Co-Op	75C1, 75C2, 75C3, 75C4, 75C5, 75C6, 75C7, 75C8, 75C9, 75C10, and 75C11.
Wells	EL-1, 2, 3, 4, 5, 6, 7, and 8.
Echlin	ECK-1C, 2C, 3C, 1F, 3F, 3G, and 4G.
ACCEL	36010, 36011, 36013, 36020, 36023, 36030, 36031, and 36033.
Conoco (Dynalife)	CN7020, 7021, 7022, 7023, 7024, 7025, 7026, 7031, 7032, 7033, and 7034.
Automatic Transmission Parts, Inc.	Y-10, 11, 12, 13, 14, 15, and 16.
Gulf Oil (Cruisemaster)	CM 70-20, 21, 22, 23, 24, 25, 26, 31, 32, 33, and 34.
Ford (Motorcraft)	DZ-5000, 5001, 5002, 5003, 5004, 5005, and 5006.
Shell Oil (Shell)	S70-20, 21, 22, 23, 24, 25, 26, 31, 32, 33, and 34.
IHC Fleetrite	549621-C19, 549622-C19, 549623-C19, 549624-C19, 549625-C19, 549626-C19, 549627-C19.

This Executive Order is valid provided that installation instructions for this device will not recommend tuning the vehicle to specifications different than those listed by the vehicle manufacturer.

Changes made to the design or operating conditions of the device, as exempted by the Air Resources Board, that adversely affect the performance of the vehicle's pollution control system shall invalidate this Executive Order.

Marketing of this device using an identification other than that shown in this Executive Order or marketing of this device for an application other than those listed in this Executive Order shall be prohibited unless prior approval is obtained from the Air Resources Board.

This Executive Order does not constitute any opinion as to the effect that the use of this device may have on any warranty either expressed or implied by the vehicle manufacturer.

THIS EXECUTIVE ORDER DOES NOT CONSTITUTE A CERTIFICATION, ACCREDITATION, APPROVAL, OR ANY OTHER TYPE OF ENDORSEMENT BY THE AIR RESOURCES BOARD OF ANY CLAIMS OF THE APPLICANT CONCERNING ANTI-POLLUTION BENEFITS OR ANY ALLEGED BENEFITS OF THE PRESTOLITE ELECTRICAL DIVISION "BID" BREAKERLESS INDUCTIVE IGNITION SYSTEM ALSO MARKETED UNDER THE BRAND NAMES -- WARDS, RITE-LINE, CO-OP, WELLS, ECHLIN, ACCEL, CONOCO (DYNALIFE), AUTOMATIC TRANSMISSION PARTS, INC., GULF OIL (CRUISEMASTER), FORD (MOTORCRAFT), SHELL OIL (SHELL), AND IHC FLEETRITE.

No claim of any kind, such as "Approved by Air Resources Board" may be made with respect to the action taken herein in any advertising or other oral or written communication.

Section 17500 of the Business and Professions Code makes untrue or misleading advertising unlawful, and Section 17534 makes violation punishable as a misdemeanor.

Section 43644 of the Health and Safety Code provides as follows:

> "43644. (a) No person shall install, sell, offer for sale, or advertise, or, except in an application to the board for accreditation of a device, represent any device as a motor vehicle pollution control device for use on any used motor vehicle unless that device has been accredited by the board. No person shall sell, offer for sale, advertise, or represent any motor vehicle pollution control device as an accredited device which, in fact, is not an accredited device. Any violation of this subdivision is a misdemeanor."

Any apparent violation of the conditions of this Executive Order will be submitted to the Attorney General of California for such action as deems advisable.

Executive Orders D-54-3 dated November 26, 1975 and D-54-4 dated March 11, 1976 are superseded and of no further force or effect.

Executed at Sacramento, California, this 30 day of April, 1976.

original signed by
Thomas C. Austin
Deputy Executive Officer-Technical

State of California

AIR RESOURCES BOARD

April 13, 1976

Staff Report

(Addendum to Staff Report dated March 6, 1975)
Evaluation of Prestolite Electrical
Division "BID" Breakerless Inductive
Ignition System for Exemption
from the Provisions of Section 27156
of the Vehicle Code

I. Introduction

Prestolite Electrical Division, 511 Hamilton Street, Toledo, Ohio 43694, was issued Executive Orders D-54-3 and D-54-4 dated November 26, 1975 and March 11, 1976 respectively. These are exemptions from the prohibitions of Motor Vehicle Code Section 27156 for the Prestolite "Bid" Breakerless Ignition System which is also known by other brand names described in the Executive Orders. The exemptions were for certain 1975 and older model year vehicles equipped with a standard Kettering ignition system using device part numbers as specifically listed in the Executive Orders. The exemption did not apply to:

1) Those vehicles originally equipped with breakerless ignition systems or dual point ignition systems where one of the points is used to retard timing for emission control.
2) Those 1966 through 1970 vehicles equipped with "NOx retrofit devices" with a 4° retard in basic ignition timing (i.e., Carter, Echlin, STP Air Computer, AQP - Electro-NOx and Kar Kit).

Prestolite Electrical Division has now applied (Exhibit A) to add kits for Volkswagen, Toyota, Pinto and International Harvester Vehicle applications with brand names and part numbers as follows:

Brand Name	VW, Pinto, Capri *	Toyota *	IHC (Vacuum and centrifugal advance)	IHC (Centrifugal advance only)
Engineering No.	IDL-5017	IDL-5018	IDL-5019	IDL-5020
Prestolite	70-31	70-32	70-33	70-34
Rite-Line	RL-7031	RL-7032	RL-7033	RL-7034
Co-op	75C8	75C9	75C10	75C11
Montgomery Ward	15808	15809	--	--
Conoco	CN 7031	CN 7032	CN 7033	CN 7034
Gulf Oil	CM 70-31	CM 70-32	CM 70-33	CM 70-34
Shell Oil	S70-31	S70-32	S70-33	S70-34
Wells	EL-8	--	--	--

*Kits supply an ignition coil

II. System Description

The "BID" is a breakerless, retrofit ignition system utilizing a resonant, magnetic pick-up coil and a metallic "toothed" trigger wheel which is mounted concentric to the distributor shaft and lowers the magnetic field strength in the pick-up coil. This voltage reduction triggers a change in a unistable switch which controls a power switching transistor. This power transistor controls current flow to the primary of the OEM ignition coil of the standard Kettering ignition system.

III. System Evaluation

The applicant submitted electrical performance characteristics data for the device when tested according to the SAE J973a test procedure. In order to evaluate the device, the electrical characteristics of the ignition system with and without the device were compared. The applicants data indicated spark energy degradation at cruise conditions of 46.7% on a 1973 Toyota and 35.4% on a 1973 Volkswagen.

Discussion with the applicant did not resolve the spark energy degradation shown in their data. Therefore, confirmatory tests were conducted on the Air Resources Board's ignition system simulator which consists of a Sun Distributor Tester, Tektronix Oscilloscope, Sun Ignition Analyzer and associated accessories according to SAE J973a, Ignition System Measurements Procedure. The baseline and device tests were conducted with a 1967 Toyota 4 cylinder, and a 1973 Volkswagen 4 cylinder ignition systems. The results of this comparison are shown in Table I and was similar to the data submitted by the manufacturer.

The data showed a degradation of spark energy at cruise conditions (4000 RPM) with the device. The spark energy degradation with the Toyota was 61.5% and 56.5% for the Volkswagen. At the cruise condition the energy level with the device on the Toyota was 5.2 millijoules and 5.6 millijoules for the Volkswagen. The O.E.M. ignition system design does not contain a ballast resistor, instead the ignition coil is designed with a high resistance (3 to 4 ohms) primary coil.

The Prestolite Electrical Division was notified that these results did not meet the Air Resources Boards criteria of 10 millijoules minimum spark energy and no more than 20% degradation from O.E.M. The Prestolite Electrical Division presented additional data to compare spark energy when the spark is discharged through a spark gap in pressurized nitrogen instead of an air gap.

The Air Resources Board also experimented with a spark gap in pressurized nitrogen, however the data obtained was inconclusive and has not been considered in this evaluation.

The Prestolite Electrical Division subsequently decided to redesign their device to contain a replacement ignition coil for the Toyota and Volkswagen kits. This is Prestolite's coil part number P5-69 and has a primary coil resistance of 1.3 ohms. Kit No. IDL 5018 will be used for the Toyota applications. Kit No. IDL 5017 will be used for the Volkswagen, Pinto and Capri applications even though the Pinto and Capri have 1.4 to 1.5 ohm primary coils as stock equipment. This marketing arrangement was the manufacturers choice.

The Volkswagen & Toyota data supplied by Prestolite Electrical Division is shown in Tables II and III. This data indicates that the spark energy will not be degraded by the new design for Volkswagen and Toyota. The spark energy data compares as follows:

Spark Energy in Millijoules

Engine RPM	1973 Volkswagen - 4 cylinder (O.E.M. Design - No Ballast) Baseline	Device	1975 Volkswagen - 4 cylinder (O.E.M. Design - With Ballast) Baseline	Device
600	21.7	32.9	30.1	30.7
4000	19.3	23.3	18.5	21.9

Engine RPM	1973 Toyota - 4 cylinder (O.E.M. Design - No Ballast) Baseline	Device	1975 Toyota - 4 cylinder (O.E.M. Design - With Ballast) Baseline	Device
600	22.5	32.9	25.9	27.9
4000	20.0	24.0	15.5	15.8

All other test data from the Air Resources Board laboratory as well as from the manufacturer are considered within experimental and test variabilities and is evaluated as meeting the Air Resources Boards criteria. Therefore the installation of the device will not change the ignition performance characteristics or cause an increase in emissions.

The benefits claimed by the manufacturer for his device are as follows:

With Prestolite Electronic Ignition conventional tune-ups are virtually eliminated because there are no points and no condenser to wear out and be replaced. Since there are no mechanical wearing surfaces connected with the sensor and trigger wheel, timing and dwell remain constant for the life of the system.

In addition to this, the system:

- fits practically all American cars from 1968 to the present
- delivers an accurate spark with a long duration to more efficiently burn the fuel and produce few emissions
- will fire plugs at low cranking speeds and voltage levels for fast starts and smooth running under nearly all conditions
- is shock and moisture resistant and will operate reliably at temperatures from 20° below zero to 200° above
- allows spark plugs to burn clean and far outlast their normal service life
- is compatible with most all engine analysis equipment, timing lights and tachometers
- increases fuel economy and improves overall starting and operating performance

The staff concurs that maintenance would be reduced by the "BID" Breakerless Inductive Ignition System due to removal of the points. It is the opinion of the staff that the device will not create increases in fuel economy, and operating performance over a properly adjusted and maintained engine.

Starting conditions may be improved on the Volkswagen and Toyota vehicles with O.E.M. high resistance (3 to 4 ohms) primary ignition coils only. The manufacturers data showed an increase in energy at 200 RPM cranking speed and 9 volts source voltage when tested with the replacement coil.

IV. Conclusions and Recommendations

It is the opinion of the staff that Prestolite Electrical Division's "BID" breakerless inductive ignition system will not reduce the effectiveness of required emission control systems except for certain 1966-70 vehicles retrofitted with a NOx control device utilizing a sustained retardation of 4 degrees crankshaft or more.

Therefore, it is recommended that Prestolite Electrical Division be granted an exemption from the prohibitions of Vehicle Code Section 27156 for its "BID" breakerless ignition system for 1976 and older model year domestic vehicles originally equipped with the standard Kettering ignition system except for the following:

1. Vehicles equipped with a 1966-1970 NOx retrofit system utilizing a sustained ignition retardation of 4 engine degress or more at sustained high speed operation.
2. Vehicles originally equipped with a dual-point ignition system where one of the points are used to retard timing for emissions control.

Table I - ARB Data Summary of Prestolite Ignition System for 1973 Volkswagen and 1967 Toyota 4 cylinder engines.

A. Centrifugal Spark Advance in Crankshaft Degrees

1967 Toyota - 4 cylinder	Engine RPM	1973 Volkswagen - 4 cylinder Baseline	Device
Not Applicable	600	0	0
	1400	9	7.5
	2000	14	11
	2600	18	15.5
	3200	22.5	20
	4000	23.5	21

B Vacuum Spark Advance in Crankshaft Degrees

	Vacuum in. Hg.	Baseline	Device
Not Applicable	3	1	0
	6	1	1
	9	5.5	5
	15	5.5	5.5
	20	5.5	5.5

C. Spark Duration in Microseconds

Engine RPM	Baseline	Device	Baseline	Device
600	1300*	1200	1000	1000
4000	950	550	750	550

D. Secondary Voltage Rise Time in Microseconds

Engine RPM	Baseline	Device	Baseline	Device
600	50*	50	40	50
4000	40	70	40	70

E. Spark Energy in Millijoules

Engine RPM	Baseline	Device	Baseline	Device
600	22.4*	16.6	17.2	13.8
4000	13.5	5.2	12.9	5.6

F. Available Voltage (with Load) in Kilivolts

Engine RPM	Baseline	Device	Baseline	Device
600	20*	19	20	17
4000	17	14	16	13

*Tested at 800 RPM.

Table I (Cont'd)

G. Available Voltage (Simulating fouled sparkplug) in Kilivolts

Engine RPM	Baseline	Device	Baseline	Device
600	17*	15	17	14
4000	13	11	13	10

*Tested at 800 RPM.

Table II - Prestolite Ignition System Data Summary for Volkswagen engines.

A. Centrifugal Spark Advance in Crankshaft Degrees

Engine RPM	1973 Volkswagen - 4 cylinder (O.E.M. Design - No Ballast) Baseline	Device	1975 Volkswagen - 4 cylinder (O.E.M. Design - With Ballast) Baseline	Device
600	0	0	0	0
1400	5.0	5.0	5.0	5.0
2000	12.4	12.4	12.4	12.4
2600	16.0	16.0	16.0	16.0
3200	20.0	20.0	20.0	20.0
4000	21.8	21.8	21.8	21.8

B. Vacuum Spark Advance in Crankshaft Degrees

Vacuum in. Hg.	Baseline	Device	Baseline	Device
3	0	0	0	0
6	6	5	6	6
9	10.4	9.4	10.4	10.4
15	11.6	11.4	11.6	11.6
20	11.6	11.6	11.6	11.6

C. Spark Duration in Microseconds

Engine RPM	Baseline	Device	Baseline	Device
600	1700	2200	2600	2400
4000	1700	1850	1700	1900

D. Secondary Voltage Rise Time in Microseconds

Engine RPM	Baseline	Device	Baseline	Device
600	38	65	38	85
4000	38	60	38	85

E. Spark Energy in Millijoules

Engine RPM	Baseline	Device	Baseline	Device
600	21.7	32.9	30.1	30.7
4000	19.3	23.3	18.5	21.9

F. Available Voltage in Kilivolts (with load)

Engine RPM	Baseline	Device	Baseline	Device
600	27	30	30	27
4000	21	28	24	24

Table III - Prestrolite Ignition System Data Summary for Toyota Engines.

A. Centrifugal Spark Advance in Crankshaft Degrees

Engine RPM	1973 Toyota - 4 cylinder (O.E.M. Design - No Ballast) Baseline	Device	1975 Toyota - 4 cylinder (O.E.M. Design - With Ballast) Baseline	Device
600	0	0	0	0
1400	0.2	0.2	0.2	0.2
2000	4.0	4.0	4.0	4.0
2600	11.4	11.5	11.4	11.5
3200	18.0	18.0	18.0	18.0
4000	23.6	23.0	23.6	23.0

B. Vacuum Spark Advance in Crankshaft Degrees

Vacuum in. Hg.	Baseline	Device	Baseline	Device
3	0	0	0	0
6	2.6	2.0	2.6	2.0
9	8.6	8.0	8.6	8.0
15	17.2	17.0	17.2	17.0
20	17.6	17.6	17.6	17.6

C. Spark Duration in Microseconds

Engine RPM	Baseline	Device	Baseline	Device
600	1600	2200	1900	2300
4000	1040	1800	1300	1400

D. Secondary Voltage Rise Time in Microseconds

Engine RPM	Baseline	Device	Baseline	Device
600	35	60	60	85
4000	35	60	60	85

E. Spark Energy in Millijoules

Engine RPM	Baseline	Device	Baseline	Device
600	22.5	32.9	25.9	27.9
4000	20.0	24.0	15.5	15.8

F. Available Voltage in Kilovolts (with load)

Engine RPM	Baseline	Device	Baseline	Device
600	21	29	28	27
4000	23	28	24	23

Exhibit A

Prestolite Electrical Division

511 Hamilton Street
Toledo, Ohio 43694

Phone: 419-244-2811

November 17, 1975

California Air Resources Board
9528 Telstar Ave.
El Monte, California 91731

Attention: Mr. Richard Kenny

Subject: Prestolite Electronic Ignition Retrofit Kits

Dear Mr. Kenny:

In reference to our recent visit to your office, attached is data you requested in line with our application for an Executive Order to permit Prestolite to sell the following electronic ignition retrofit kits in California. This application is for kits to be used on the following vehicles:

Volkswagen
Toyota
Pinto
International Harvester

We are enclosing the C.A.R.B. test data sheets on each of the above cars, along with prints.

The number of kits and the application is as follows:

1) Volkswagen - One Kit
Prestolite P/N IDL-5017
70-31

2) Toyota - One Kit
Prestolite P/N IDL-5018
70-31

3) Pinto - One Kit
Prestolite P/N IDL-5017
70-31

4) IHC - Four Kits *
Prestolite P/N IDL-5019
70-33

Prestolite P/N IDL-5020
70-34

Prestolite P/N IDL-5001
70-20

Prestolite P/N IDL-5010
70-21

* As noted below, two of these kits for the International Harvester application have previously been approved under Executive Order D-54-1. Please note that we have shown two Prestolite part numbers - the IDL being an engineering number, the 70 number being a sales number. Both of these numbers will be used in the marketing of the product.

Application data is as follows:

Kit IDL-5017 - Volkswagen - all vehicle model years - 1968 to 75, except vehicles equipped with a screamer kit.

Kit IDL-5018 - Toyota - all vehicle model years - 1969 to 74 inclusive.

Kit IDL-5017 - Pinto - all vehicle model years - 1971 to 74, equipped with a 2000 cc engine only.

Kit IDL-5019 - all IHC 8-cylinder vacuum actuated distributors. This includes the following engines: V266, V304, V345 and V392. The same system is provided in this kit as was previously approved on EO-D-54-1, Kit IDL-5012, except the vacuum arm is slightly different to accommodate the IHC vacuum arm.

Exhibit A

Prestolite Electrical Division

Kit IDL-5020 - all 8-cylinder non-vacuum actuated units including the following engine applications: V-401, VS-401, V-478, VS-478, V-549, VS-549.

Kit IDL-5001 - covers all IHC vehicles equipped with GM 8 cylinder distributor. It includes vehicle model years 1957 - 75. This kit has already been approved on EO-D-54-1, and has been identified as IDL-5001.

Kit IDL-5010 - all 6-cylinder General Motors equipped IHC vehicles, Model Years 1963 - 75, except the Buick V-6. This kit also has been previously approved under Executive Order D-54-1.

Installation instructions on each of the above are attached.

All of the above kits will be marketed under other brand names in addition to Prestolite. The information on the other brands will be forwarded shortly.

We trust that you will find the above data in order, and that an executive order permitting sale of these kits can be issued shortly. If you have any questions, please call collect Sam or myself.

Thank you for your cooperation in expediting this request.

Very truly yours,

J. F. Carey, Director
Government & National Accounts Sales

mm 1-22

Attach.

Exhibit A

Prestolite Electrical Division

511 Hamilton Street
Toledo, Ohio 43694

Phone: 419-244-2811

December 16, 1975

The Air Resources Board Laboratory
9528 Telstar Avenue
El Monte, California 91731

Attention: Mr. K. D. Drachandt
Vehicle Compliance

Dear Mr. Drachandt:

In reference to your letter of November 28 and subsequent phone conversations between our Mr. Jim Brown and Mr. Luczynski, the following is the information you requested.

1. Attached is the electrical schematic of the control box. Please note that this is marked confidential.

2. We are air mailing under separate cover the units you requested.

3. International Harvester 392 cubic inch engine was used on the 1972 1100-1500 series 3/4 - 2 ton truck which had limited production. After checking with IHC engineering it was found that our vacuum measurements were within the OE specifications.

4. We have previously supplied you in our letter of November 17 the part numbers of the Prestolite units. We will shortly send you a letter indicating the other brands and part numbers under which these items will be marketed.

In specific references to the conversations between Mr. Luczynski and Mr. Brown. we would like to make the following comments.

1. The coil primary voltage reading you received was that of the flyback or back EMF voltages. It should be noted that the tests were with the ballast resistor in the circuit except for the 6 volts DC 100 RPM measurements in which the ballast was shorted out. The Toyota and Volkswagen OE installation use a high primary resistance coil with no ballast resistor. All other tests use the OE coil.

The energy level of all systems were considered normal using the SAE formula for calculations. The low energy level on the Volkswagen and the Toyota base line test were due to low spark plug voltage average and the short spark duration. This can be expected in a non-ballast coil at the low cranking speed.

We trust that with this information we have answered all your questions and we would appreciate your expediting this request.

Yours very truly,

J. F. Carey, Director
Government & National Accounts Sales

dls 4-1

Attach.

Exhibit A

Prestolite Electrical Division

511 Hamilton Street
Toledo, Ohio 43694

Phone: 419-244-2811

March 24, 1976

California Air Resources Board
9528 Telstar Ave.
El Monte, California 91731

Attention: Mr. Richard Kenny

Subject: Prestolite Electronic Ignition Retrofit Kits

Dear Mr. Kenny:

Supplementing our letter of November 17, 1975 covering our application for an Executive Order to permit Prestolite to sell certain electronic retrofit kits in California we now wish to amend this application in order to comply with your requirements.

Attached you will find our data for the Volkswagen, Toyota and International Harvester. The Electronics system is exactly the same as we presently have approved except for the addition of a new ignition coil.

The test procedure we used was to S.A.E. J973a. All gaps were fired in open air and set to fire at 12 K.V.

Explanation of test data:

Test (#1) Volkswagen

Baseline - Distributor #0-231-146-101
Coil # 0-221-114-006
Primary Resistance = 4.0 ohms.

Device - Distributor #0-231-146-101
Coil # P5-69 - This is a special coil used on the VW system in order to meet the gap energy. The Prestolite P5-69 is the same coil we use with the O.E. electronic ignition system used on AMC and International Harvester vehicles, with electronic ignition system.

continued -

Test (#1A) Volkswagen

Same as Test #1 except the original application uses a ballast resistor. Our device test uses the Prestolite P5-69 coil in series with the vehicle ballast as used on baseline. The device test shows very favorable since the P5-69 has a lower primary resistance than the baseline with electronic ignition system.

Test (#2) Toyota

Baseline - Distributor #19100-24011
Coil #90919-02015
Primary Resistance = 3.4 ohms

Device - Same except uses Prestolite P5-69 special coil and electronic ignition system.

Test (#2A)

Baseline - Same except it has a ballast resistor in series with coil.

Device - Same except it uses the P5-69 in series with the coil and electronic ignition system.

Test (#3) International Harvester

Baseline - Distributor #427965-C91
Coil #191455-R91
External Resistor (Ballast)
Vacuum Actuated.

Device - Same as baseline except with electronic ignition system.

Note: The International Harvester data was all re-run since the 100 RPM spec has changed from 6 VDC to 9 VDC and also because we feel we have a much better test set-up then we previously had on original test data submitted.

Test (#3A)

Baseline - Same except non-vacuum actuated.

Device - Same except with electronic ignition.

The number of kits and the application is as follows:

1) Volkswagen - One Kit
Prestolite P/N IDL-5017
70-31

2) Toyota - One Kit
Prestolite P/N IDL-5018
70-31

3) Pinto and Mercury "Capri" One Kit
Prestolite P/N IDL-5017
70-31

4) IHC - Four Kits*
Prestolite P/N IDL-5019
70-33

Prestolite P/N IDL-5020
70-34

Prestolite P/N IDL-5001
70-20

Prestolite P/N IDL-5010
70-21

* As noted below, two of these kits for the International Harvester application have previously been approved under Executive Order D-54-1. Please note that we have shown two Prestolite part numbers - the IDL being an engineering number, the 70 number being a sales number. Both of these numbers will be used in the marketing of the product.

Application data is as follows:

Kit IDL-5017 - Volkswagen - all vehicle model years - 1968 to 76, except vehicles equipped with a screamer kit.

Kit IDL-5018 - Toyota - all vehicle model years - 1969 to 76 inclusive.

to be continued

Kit IDL-5017 - Pinto and Mercury "Capri" - all vehicle model years - 1971 to 74, equipped with a 2000 cc engine only. (122 cu")

Kit IDL-5019 - all IHC 8 cylinder vacuum actuated distributors. This includes the following engines: V266, V304, V345 and V392. The same system is provided in this kit as was previously approved on EO-D-54-1, Kit IDL-5012, except the vacuum arm is slightly different to accommodate the IHC vacuum arm.

Kit IDL-5020 - all 8-cylinder non-vacuum actuated units including the following engine applications: V-401, VS-401, V-478, VS-478, V-549, VS-549.

Kit IDL-5001 - covers all IHC vehicles equipped with GM 8 cylinder distributor. It includes vehicle model years 1957 - 75. This kit has already been approved on EO-D-54-1, and has been identified as IDL-5001.

Kit IDL-5010 - all 6-cylinder General Motors equipped IHC vehicles, model years 1963 - 75, except the Buick V-6. This kit also has been previously approved under Executive Order D-54-1.

All of the above kits will be marketed under other brand names in addition to Prestolite. The information on the other brands will be forwarded shortly.

We trust that you will find the above data in order, and that an Executive Order permitting sale of these kits can be issued shortly. If you have any questions, please call collect Sam or myself.

We feel we have a very high confidence level in this test data and trust it meets with your approval.

Very truly yours,

J. F. Carey, Director
Government & National Accounts Sales

JFC/nah

Exhibit A

Prestolite Electrical Division

511 Hamilton Street
Toledo, Ohio 43694

Phone: 419-244-2811

March 26, 1976

California Air Resources Board
9528 Telstar Avenue
El Monte, California 91731

Attention: Mr. Mitch Luczynski

Subject: Prestolite Electronic Ignition Retrofit Kits

Dear Mr Luczynski:

Further to Mr. J. F. Carey's letter of March 24, 1976, we are attaching a list of our customers who will be purchasing the VW, Pinto, Capri, Toyota, and IHC kits. We have identified the engineering number of the kits involved and, as the information has been provided to us, the customers and part numbers for each of those kits. Please note that we have identified some customers without part numbers. We are attempting to have these numbers assigned; and as soon as they are available, we will be forwarding them to you.

Thank you for your cooperation. If we can be of any further assistance, please let us know.

Very truly yours,

W L Shull

W. L. Shull
Administrative Assistant
Marketing - PED

ias 5-1
Attachment

Prestolite Electrical Division

Exhibit A

PRESTOLITE ELECTRONIC IGNITION RETROFIT KITS

Customer	VW, Pinto, Capri	Toyota	IHC	
Engineering No.	IDL-5017	IDL-5018	IDL-5019	IDL-5020
Prestolite	70-31	70-32	70-33	70-34
Rite-Line	RL-7031	RL-7032	RL-7033	RL-7034
Co-op	75C8	75C9	75C10	75C11
Montgomery Ward	15808	15809	--	--
Conoco	CN 7031	CN 7032	CN 7033	CN 7034
Gulf Oil	CM 70-31	CM 70-32	CM 70-33	CM 70-34
Shell Oil	S70-31	S70-32	S70-33	S70-34
Wells	EL-8	--	--	--
Ford Motorcraft*				
Echlin*				
Accel*				

* Part number unassigned.

W. L. Shull
March 26, 1976

ias 5-1